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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/092,815

03/07/2002

Thomas R. Fenelon

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CATERPILLAR INC.
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PATENT DEPT.
PEORIA, IL 616296490

EXAMINER

CHANG, CHING

ART UNIT

PAPER NUMBER

3748

DATE MAILED: 02/27/2004

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,815

Applicant(s)

FENELON ET AL.

Examiner

Ching Chang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 5, 2004 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. ***Claims 1-2, 6-8, 9, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu (US Patent No. 5,690,841) in view of Bunker et al. (US Patent No. 6,067,946).***

Hu discloses a fluid system (See Fig. 1) for an internal combustion engine (10), said internal combustion engine including a head assembly (20, 52) having at least one

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subsystem (30, 32, 40, 60, 70) positioned therein, said fluid system comprising: a fluid reservoir (78); hydraulic fluid (50) contained within said stand alone fluid reservoir; and a fluid pump (80) operatively supplying said hydraulic fluid to the head assembly and being used for actuating the at least one subsystem positioned in the head assembly of the internal combustion engine, wherein said fluid system includes a high pressure fluid manifold (64), wherein said hydraulic fluid is used to actuate an exhaust valve actuation system (30, 32, 40, 60, 70), wherein said exhaust valve actuation system is a compression release brake system (See ABSTRACT; Col. 3, line 29 through line 52), where said hydraulic fluid is used to actuate an intake valve actuation system (30, 32, 40, 60, 70).

Hu further discloses that the hydraulic fluid may be ... any other suitable fluid (See Col. 4, line 12 through line 13).

This recitation by Hu is deemed by the Examiner to be an indication that such is a stand alone system isolated from any other fluid systems. Furthermore, the use of a "hydraulic fluid" is an express statement that the fluid entered to actuate the valve, does not contain other fluids utilized by the engine.

Hu, however, fails to disclose the head assembly being completely sealed.

The patent to Bunker on the other hand, teaches that it is conventional in the art of hydraulic valve actuation system, to have a cylinder head (23) completely sealed in order to accommodate a valve actuation system 20.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the completely sealed head assembly as taught by

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Bunker in the Hu device, since the use thereof would provide an improved hydraulic valve actuation system.

3. ***Claims 1-2, 8, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. (US Patent No. 5,501,186) in view of Bunker et al. (US Patent No. 6,067,946).***

Hara discloses a fluid system (See Figs 5-6, 10) for an internal combustion engine, said internal combustion engine including a head assembly having at least one subsystem (10, 12, 14, 80, 120) positioned therein (See Col. 2, line 39 through Col. 3, line 53; Col. 5, line 27 through Col. 5, line 52), said fluid system comprising: a fluid reservoir (Figs 6, 10); hydraulic fluid contained within said fluid reservoir; and a fluid pump (112) operatively supplying said hydraulic fluid to the head assembly and being used for actuating the at least one subsystem positioned in the head assembly of the internal combustion engine; wherein said fluid system includes a high pressure fluid manifold (See Col. 3, line 54 through Col. 4, line 14; Col. 5, line 53 through Col. 6, line 18); where said hydraulic fluid is used to actuate an intake valve actuation system (12, 14, 70, 72, 80, 120).

Hara further discloses a hydraulic diagram (Fig. 6) for the said fluid system (See Col. 3, line 54 through Col. 4, line 14; Col. 5, line 53 through Col. 6, line 18). Since the hydraulic fluid system shown in Figure 6 has different operation characteristics as compared to the existing engine oil lubrication system, the hydraulic fluid system disclosed by Hara is considered by the Examiner as a stand alone system isolated from

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any other fluid systems with a stand alone fluid reservoir, and be used solely for actuating the at least said one subsystem.

Hara, however, fails to disclose the head assembly being completely sealed.

The patent to Bunker on the other hand, teaches that it is conventional in the art of hydraulic valve actuation system, to have a cylinder head (23) completely sealed in order to accommodate a valve actuation system 20.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the completely sealed head assembly as taught by Bunker in the Hara device, since the use thereof would provide an improved hydraulic valve actuation system.

4. *Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu in view of Bunker (as applied to claims 1 and 9 above), and further in view of Glassey (US Patent No. 5,191,867).*

The modified Hu device, however, fails to disclose the said subsystem is a fuel injection system.

The patent to Glassey on the other hand, teaches that it is conventional in the hydraulic system application art, to utilize a hydraulic system (20) to actuate a fuel injection system (10, 18).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the hydraulic system to actuate a fuel injection system as taught by Glassey in the modified Hu device, since the use thereof would provide an improved fuel injection system for the internal combustion engine.

5. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara in view of Bunker (as applied to claims 1 and 9 above), and further in view of Glassey (US Patent No. 5,191,867).

The modified Hara device, however, fails to disclose the said subsystem is a fuel injection system.

The patent to Glassey on the other hand, teaches that it is conventional in the hydraulic system application art, to utilize a hydraulic system (20) to actuate a fuel injection system (10, 18).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the hydraulic system to actuate a fuel injection system as taught by Glassey in the modified Hara device, since the use thereof would provide an improved fuel injection system for the internal combustion engine.

6. Claims 3-4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu (as applied to claims 1-2, and 13/9 above) in view of Bunker, and further in view of Bartley (US Patent No. 6,220,521).

The modified Hu device, however, fails to disclose a heat exchanger (or a heater) operatively connected between the fluid pump and the high pressure manifold for a camless engine.

The patent to Bartley on the other hand, teaches that it is conventional in the heat exchanger application art, to utilize a heat exchanger (33) to maintain the hydraulic fluid temperature of a hydraulic system (60) in a camless engine (30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a heat exchanger as taught by Bartley in the modified Hara device, since the use thereof would maintain the hydraulic fluid at an acceptable viscosity during different operating temperatures of the engine.

7. *Claims 3-4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara (as applied to claims 1-2, and 13/9 above) in view of Bunker, and further in view of Bartley (US Patent No. 6,220,521).*

The modified Hara device, however, fails to disclose a heat exchanger (or a heater) operatively connected between the fluid pump and the high pressure manifold for a camless engine.

The patent to Bartley on the other hand, teaches that it is conventional in the heat exchanger application art, to utilize a heat exchanger (33) to maintain the hydraulic fluid temperature of a hydraulic system (60) in a camless engine (30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a heat exchanger as taught by Bartley in the modified Hara device, since the use thereof would maintain the hydraulic fluid at an acceptable viscosity during different operating temperatures of the engine.

Response to Amendment

8. Applicant's arguments with respect to claims 1 and 9 have been considered but are moot in view of the new ground(s) of rejection.

In addition, in response to applicants' argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "Furthermore, the Hu reference teaches a fluid system to improve cam and valve interaction. This does not address the problem of keeping the operating fluid free from contaminants such as from combustion, controlling the temperature for purposes of response time of the systems, or using a fluid that may not be suitable for any other hydraulic system on a machine or in an internal combustion engine" (See Page 4 of Attorney's REMARKS)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Stockner (US Patent No. 5,517,972).

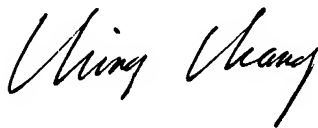
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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (703)306-3478. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

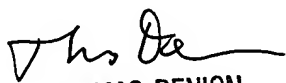
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703)308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang



THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700